

## **REMARKS**

### **Specification**

In the specification, the paragraphs [0004] and [0016] have been amended to correct minor editorial problems.

### **Summary**

Claims 1-5, 7 and 9-17 are pending in this application. Claims 6, 8 and 18 have been cancelled without prejudice or disclaimer. Claims 1, 7, 9, 10, 11 and 15 have been amended. No new matter has been added. Favorable reconsideration and allowance of the pending claims are requested.

Although Applicant disagrees with the broad grounds of rejection set forth in the Office Action, Applicant has amended independent claims 1, 7, 11 and 15 in order to facilitate prosecution on the merits. More particularly, independent claims 1, 7, 11 and 15 have been amended to include subject matter from dependent claims 6, 8 and 18, as well as additional subject matter from the Specification. Support for the above amendments can be found in the specification at least at FIG. 1 and accompanying paragraphs [0029] and [0045].

### **Claim Objections**

Claims 8-10 stand objected to due to informalities. Claims 8-10 have been amended to correct the informalities. Removal of this objection is respectfully requested.

**Claim Rejections – 35 U.S.C. § 101**

Claims 15-17 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicants respectfully traverse this rejection.

Claims 15-17 are article of manufacture claims that recite “said storage medium including stored instructions that, when executed by a processor, result in” various operations. Paragraph [0023] of the Specification provides examples for “storage medium” including various types of computer-readable media. It is well-established that such language is clearly “functional descriptive material” since it comprises a computer program which imparts functionality when employed as a computer component. MPEP § 2106.01. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. MPEP § 2106.01. Consequently, claims 15-17 represent statutory subject matter. Although paragraph [0023] describes embodiments where the instructions may be compiled or installed before being executed by a processor, these features are not currently recited in claims 15-17, therefore this point is moot with respect to the current claims.

**Claim Rejections - 35 U.S.C. § 102**

Claims 1-5 and 9-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent Publication No. 2003/0185310 to Ketchum (hereinafter “Ketchum”). Applicants respectfully traverse the rejection, and requests reconsideration and withdrawal of the anticipation rejection.

Independent claims 1, 7, 11 and 15 have been amended to include subject matter from dependent claim 8. Therefore claims 1-5, 7 and 9-17 will be addressed below with respect to the obviousness rejection for dependent claim 8.

**Claim Rejections - 35 U.S.C. § 103**

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ketchum in view of United States Patent No. 6,978,015 to Erickson et al. (hereinafter "Erickson"). Applicants respectfully traverse the rejection, and requests reconsideration and withdrawal of the rejection.

Applicant has cancelled claim 8 and has incorporated its subject matter into claims 1, 7, 11 and 15. Therefore, the obviousness rejection with respect to claim 8 will be addressed below with respect to claims 1-5, 7 and 9-17.

The Office Action has failed to meet its burden of establishing a *prima facie* case of obviousness. According to MPEP § 2143, three basic criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 706.02(j).

As recited above, to form a *prima facie* case of obviousness under 35 U.S.C § 103(a) the cited references, when combined, must teach or suggest every element of the claim. *See* MPEP § 2143.03, for example. Applicant respectfully submits that the Office Action has not established a *prima facie* case of obviousness because the cited references, taken alone or in combination, fail to teach or suggest every element recited in claims 1-5, 7 and 9-17. Therefore claims 1-5, 7 and 9-17 define over the Ketchum reference and the Erickson reference whether taken alone or in combination. For example, claim 1 recites the following language, in relevant part:

filtering a plurality of data streams received over a channel  
for a multiple input multiple output system to reduce far  
end cross talk between said data streams using said  
crosstalk suppression filter matrix to form filtered data  
streams, said filtered data streams having substantially  
similar equal impulse responses; and

equalizing said filtered data streams using one or more  
equalizers with a set of substantially similar equalization  
parameters.

Applicant respectfully submits that he has been unable to locate at least the above recited language of independent claim 1 in the teachings of the Ketchum reference or the Erickson reference.

Applicant respectfully submits that the Ketchum reference fails to teach, suggest or disclose the above recited language of independent claim 1. As correctly noted in the Office Action, the Ketchum reference fails to teach the use of one or more equalizers. Therefore, Applicant respectfully submits that the Ketchum reference fails to teach, suggest or disclose each and every element recited in amended independent claim 1.

Furthermore, Applicant respectfully submits that the Erickson reference also fails to teach, suggest or disclose the above recited language of independent claim 1.

Applicant respectfully submits that the Erickson reference, arguably, teaches multiple equalizers 402, 406. However, it appears that the equalizers 402, 406 use different sets of equalization parameters. For instance, the cited portions of the Erickson reference states:

The disturber removal unit 408 accepts the disturber signal representation(s) and effectively processes them according to: 1) their corresponding co-channel  $h1(t)$ ,  $h2(t)$ ,  $h3(t)$ ; and 2) the activity of the equalizer 402.

Erickson, Col. 10: Lines 48-53. It therefore appears that the equalizer 406, which is part of the disturber removal unit 408, performs equalization based on the activity of the equalizer 402. Therefore it appears that the equalizers 402, 406 use different sets of equalization parameters. This is further evidenced in that the equalizers 402, 406 are connected in series in FIG. 4. By way of contrast, claim 1 recites “equalizing said filtered data streams using one or more equalizers with a set of substantially similar equalization parameters.” Applicant respectfully submits that he has been unable to locate at least the above recited language of claim 1 in the teaching of the Erickson reference. Therefore, Applicant respectfully submits that the Erickson reference fails to teach, suggest or disclose each and every element recited in independent claim 1. Consequently, the Ketchum reference and the Erickson reference, whether taken alone or in combination, fail to disclose, teach or suggest every element recited in claim 1.

The above notwithstanding, independent claims 1, 7, 11 and 15 have been further amended to recite “filtering a plurality of data streams received over a channel for a multiple input multiple output system to reduce far end cross talk between said data

streams using said crosstalk suppression filter matrix to form filtered data streams, said filtered data streams having substantially similar equal impulse responses.” Applicant respectfully submits that he has been unable to locate at least the above recited language of the independent claims in the teachings of the Ketchum reference or the Erickson reference. Consequently, the Ketchum reference and the Erickson reference, whether taken alone or in combination, fail to disclose, teach or suggest every element recited in claim 1.

For at least these reasons, Applicant submits that claim 1 is patentable over the cited references, whether taken alone or in combination. In addition, claims 7, 11 and 15 recite features similar to those recited in claim 1. Therefore, Applicant respectfully submits that claims 7, 11 and 15 are not obvious and are patentable over the cited references for reasons analogous to those presented with respect to claim 1. Accordingly, Applicant respectfully requests removal of the obviousness rejection with respect to claims 1, 7, 11 and 15. Furthermore, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. *See* MPEP § 2143.03, for example. Accordingly, Applicant respectfully requests withdrawal of the obviousness rejection with respect to claims 2-5, 9, 10, 12-14, 16 and 17 that depend from claims 1, 7, 11 or 15, and therefore contain additional features that further distinguish these claims from the cited references.

Furthermore, Applicant submits that even if the combination of the cited references were to teach or suggest every element of the claimed invention, without motivation to combine the cited references to arrive at the claimed invention, a rejection based on obviousness under 35 U.S.C. § 103(a) is improper. *See* MPEP § 2143.01, for

example. The motivation to make the alleged combination must be found either in the cited references or in the knowledge generally available to a person of ordinary skill in the art. *Supra*. Possible sources for a motivation to combine references include: (1) the nature of the problem to be solved; (2) the teachings of the prior art, and (3) the knowledge of persons of ordinary skill in the art. The Office, however, cannot rely solely upon the level of skill in the art to provide the suggestion to make the alleged combination of cited references. *Supra*. Initially, the burden is on the Office to provide some suggestion that it is desirable to do what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *See* MPEP § 2142, for example.

Claims 1-5, 7 and 9-17 also are patentable and non-obvious over the Ketchum reference in view of the Erickson reference, whether taken alone or in combination, because a rejection based on obviousness under 35 U.S.C. § 103(a) is improper without a motivation to combine the cited references. *See* MPEP § 2142, for example. The Ketchum reference fails to discuss one or more equalizers or their associated parameters. Therefore, the Ketchum reference clearly fails to provide the proper motivation to make the combination alleged by the Office. Similarly, the Erickson reference also fails to provide the proper motivation to combine as previously discussed.

In the present case, the Office has failed to meet its initial burden to provide some suggestion or motivation that it is desirable to do what the Applicant has done. The

Office also has failed to support its conclusion of obviousness by failing to present a convincing line of reasoning as to why a person of ordinary skill in the art would have found the claimed invention to have been obvious in view of the teachings of the cited references. Rather, the Office merely concludes that it would have been obvious to make the alleged combination without providing any reasoning at all as to why the alleged combination would have been desirable to a person of ordinary skill in the art. As discussed previously, a conclusion by the Office that the claimed invention is obvious, either because it is expressly or impliedly suggested in the cited references, must be supported by a convincing line of reasoning setting forth why a person of ordinary skill in the art would have found the claimed invention to have been obvious in view of the teachings of the cited references. *See* MPEP § 2142, for example.

Here, the Ketchum reference and the Erickson reference fail to teach or suggest, either expressly or impliedly, the desirability of making the alleged combination to arrive at the subject matter of claims 1-5, 7 and 9-17. Nor do the cited references provide any motivation to make the alleged combination to arrive at the subject matter of claims 1-5, 7 and 9-17. Furthermore, the Office does not set forth a clear line of reasoning or suggestion as to why it would have been desirable for a person of ordinary skill in the art to make the alleged combination of the Ketchum reference and the Erickson reference, to arrive at the subject matter of claims 1-5, 7 and 9-17.

To establish a *prima facie* case of obviousness, all of the teachings of the cited references must be considered, even disclosures that teach away from the claimed invention. *See* MPEP § 2141.02. Furthermore, the proposed combination cannot render the cited references unsatisfactory for their intended purpose or change the principle of



operation of a reference. *See* MPEP § 2143.01, for example. Thus, it is improper to combine references where the references teach away from their combination. *See* MPEP § 2145, for example.

Here, the Erickson reference teaches away from making the combination alleged in the Office Action because the equalizers 402, 406 appear to use different sets of equalization parameters. Therefore, it is improper to make the combination of the Ketchum reference and the Erickson reference as alleged in the Office Action. Accordingly, Applicant respectfully submits for at least these reasons that claims 1-5, 7 and 9-17 are non-obvious and patentable over the Ketchum reference in view of the Erickson reference, whether taken alone or in combination, and the obviousness rejection with respect to claims 1-5, 7 and 9-17 should be withdrawn.

For at least the reasons given above, claims 1-5, 7 and 9-17 are non-obvious and represent patentable subject matter in view of the cited references, whether taken alone or in combination.

### **Conclusion**

It is believed that claims 1-5, 7 and 9-17 are in condition for allowance. Accordingly, a timely Notice of Allowance to this effect is earnestly solicited.

Applicants do not otherwise concede, however, the correctness of the Office Action's rejection with respect to any of the limitations of the independent claims and dependent claims discussed above. Accordingly, Applicants hereby reserve the right to make additional arguments as may be necessary to further distinguish the claims from the cited references, taken alone or in combination, based on additional features contained in

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the independent or dependent claims that were not discussed above. A detailed discussion of these differences is believed to be unnecessary at this time in view of the basic differences in the independent claims pointed out above.

The Examiner is invited to contact the undersigned to discuss any matter concerning this application.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to deposit account 50-4238.

Respectfully submitted,

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John F. Kacvinsky, Reg. No. 40,040  
Under 37 CFR 1.34(a)

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